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ABSTRACT

To ensure that Florida's vocational education programs are relevant to the changing needs of the state's labor market: (1) activities on new and emerging occupations should be coordinated through the Labor Market Information Coordinating Committee (LMICC); (2) the Bureau of Labor Market Information (BLMI) should identify significant occupations and industries in Florida related to new, emerging, and changing occupations; (3) the BLMI should work with the Division of Vocational, Adult, and Community Education (DVACE) and the Division of Community Colleges (DCC) to develop survey procedures for identifying additional new, emerging, or changing occupations and their skill requirements; (4) DVACE should use the information on changing occupations to help set priorities for Career Merit Achievement Plan Development; (5) DVACE and the DCC should identify and help fund the recommended activities for the BLMI and the development of career maps for targeted occupations; (6) the LMICC should recommend ways to have a statewide impact on responding to identified changes in occupations and related skill requirements; (7) the Florida Department of Education, in cooperation with the Florida Department of Labor and Employment Security, should research the number and characteristics of expected new entrants to Florida's labor force; (8) the Career Information Delivery System should incorporate information about new and emerging occupations and on skill and preparation requirements; and (9) the Schools Program of the Job Service should provide particular support for women and minority groups. (The document includes 12 references and 2 appendices.) (CML)

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CHANGING OCCUPATIONS IN FLORIDA

An Agenda for Identifying and Responding to New, Emerging, and Changing Occupations in Florida's Labor Market

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THE FLORIDA COUNCIL ON VOCATIONAL EDUCATION

January 1990

CHANGING OCCUPATIONS IN FLORIDA
*An Agenda for Identifying and Responding to
New, Emerging, and Changing Occupations
in Florida's Labor Market*

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Preface

The Florida Council on Vocational Education (F/COVE) believes that all Floridians have the right to high quality and effective vocational education programs. The Council provides guidance to the State Board of Vocational Education on policy matters which will assure that vocational programs, services, and activities are available to all persons who need and can benefit from them.

The 13 members of F/COVE, who are appointed by the State Board of Vocational Education, provide the Council with a broad range of expertise and experience. Seven individuals represent the private sector and six represent education. A listing of the Council membership appears on page i of this report.

One of the responsibilities given to each state council on vocational education by the Carl D. Perkins Vocational Education Act of 1984 is to "submit recommendations to the State board [of vocational education] which emphasize the use of business concerns and labor organizations." The Florida Council on Vocational Education believes that the identification and description of new and emerging occupations, along with changing skill requirements of existing jobs, is a primary concern of business and labor, and that business and labor can make a substantial contribution to knowledge about job changes in Florida's labor force.

It is the desire of the Florida Council on Vocational Education that this report and accompanying recommendations will aid in assuring that Florida's vocational education programs are relevant to the changing needs of the State's labor market.

Copies of this report are available upon request from the Florida Council on Vocational Education, Florida Education Center (1236-C, PTW), Tallahassee, FL 32399-0400; phone 904/488-5308 or SunCom 278-5308.

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PART I. BACKGROUND

A. Purpose and Scope

The purpose of this paper is to set forth policy recommendations from the Florida Council on Vocational Education to aid in assuring that Florida's vocational education programs are relevant to the changing needs of Florida's labor market.

The paper focuses particularly on labor market demand issues related to identifying and responding to occupations that are being created (new), are growing at a very high rate (emerging), or are experiencing significant changes in their skill requirements. The paper also addresses some of the labor supply issues related to special features of Florida's future labor force and implications for responding to the needs of these workers.

The intent of this paper is to provide a practical agenda for action, acknowledging long-term goals that must be identified, planned for and worked toward, while at the same time setting into place the activities that will lead to the achievement of these goals over time.

Part I provides background to the topic of new, emerging, and changing occupations, including purpose and scope of the paper, the need for studying and responding to this subject, a definition of terms to be used in the paper, and a brief description of the current "state of the art" in the U. S. and in Florida.

Part II provides recommendations on how to identify new, emerging, and changing occupations and their skill requirements, including analysis of labor market information and input from business and labor. The recommendations focus upon bringing together existing resources/organizations in a specific and ongoing course of action.

Part III provides suggestions for responding to identified occupational changes both in terms of 1) the particular needs of the special populations that will be growing parts of Florida's labor force and 2) agency services that can respond to these needs.

B. Need

There are many articles, papers and books available today about the changes that are taking place in the U.S. labor market, in large part due to advances in technology. This information has contributed to an increasing public awareness of the need for information about what has commonly been termed "new and emerging occupations."

The implications of these changes are particularly relevant to the state's vocational education system which must help prepare workers to enter jobs, many of which are new or have changing skill requirements. The basic challenge is keeping education programs relevant.

The Carl D. Perkins Vocational Education Act underscores vocational education's responsibility by requiring (Section 113(a)(3)(D)) state plans to assess the "pertinence of programs to the workplace and to new and emerging technologies" and the "technological and educational quality of vocational curricula, equipment, and instructional materials to enable vocational students and instructors to meet the challenges of increased technological demands of the workplace".

The Florida Department of Education's Blueprint for Career Preparation is "designed to address the increasing gap between emerging job requirements and the ability of Florida's workforce to meet them. It is designed to prepare students for the world of work, a competitive global marketplace that is changing every day." The Blueprint continues on to outline the path to career preparation and includes the development of career plans. The ability to implement the Blueprint in a meaningful way depends upon the availability of information about the jobs that will be in Florida's economy and what they require, as well as the availability of vocational programs that provide training for these jobs and their requirements.

One of the responsibilities given to the State Councils on Vocational Education in the Carl D. Perkins Vocational Education Act (Section 112(d)(5)) is to "submit recommendations to the State board on the conduct of vocational education programs conducted in the State which emphasize the use of business concerns and labor organizations." The Florida Council on Vocational Education believes the identification and description of new and emerging occupations, along with changing skill requirements of existing jobs, is a primary concern of business and labor, and that business and labor can make a substantial contribution to knowledge about job changes in Florida's labor market.

C. Definitions of New and Emerging Occupations

There have been a number of recent studies about the subject of new and emerging occupations (see the Selected Bibliography at the end of this paper) which include extensive literature reviews and definitions of terms. This paper lists some of the major studies in the field, and draws from them for their findings and relevance to Florida. This paper will not, however, attempt to summarize the current state of research; it will rather focus on the implications of current research for appropriate and useful implementation activities in Florida.

Two papers in particular (Wisconsin, 1987 and Texas, 1986) summarize definitions of new, emerging and changing occupations provided in previous studies. The most commonly accepted definitions appear to have been provided by the Oregon Occupational Information Coordinating Committee (1981) and they will also be used in this paper.

A **new** occupation is an occupation whose major tasks, skills, and duties are not included in any currently existing occupation or whose tasks are combined in significantly different ways that preclude workers from other occupations performing the work without training beyond a short demonstration.

A **changing** occupation is an existing occupation that has experienced change in duties, skills, or tasks significant enough to require training beyond a short demonstration, but not significant enough to classify into another occupation or create a new occupation.

The Texas State Occupational Information Coordinating Committee study (1986) focused on emerging occupations and provided the following definition that will also be used in this paper.

An **emerging** occupation is an occupation (defined either by a Standard Occupation Code or by a reasonably well accepted descriptive phrase) which 1) is growing rapidly from a small base either within an economy as a whole or within a particular industry, and 2) has significant education or training implications.

The Texas study also makes an important point about the element of significance for a new, emerging or changing occupation and suggests the development of criteria that will exclude occupations that are numerically insignificant, both in terms of labor market impact and education/training impact.

D. Current Practices

This section outlines some of the activities going on in other parts of the country and summarizes the current situation in Florida.

The most recent review of current practices in the area of new and emerging occupations is the Wisconsin study (1987). It polled all states about their current practices and lists suggestions and activities for all respondents. Results of this survey indicate that some states are using Occupational Employment Statistics (OES) projections to study job skills. The study concludes, however, that "Changing Job Skills in Virginia is probably the best model for studies of changing occupations." The Virginia study combined literature research, OES data, and employer interviews to identify occupations with probable changes, and to describe changing skills.

The Texas Occupational Information Coordinating Committee study (1986) also reports on the literature and includes a complete description of the steps necessary to identify emerging occupations and skills shifts.

In general, recent literature and practices studies reveal that states are aware of the need to know about occupational changes, and a number of studies have been done, but there seems to be little actual coordinated and ongoing activity in place. The Virginia study was a specific project and efforts of this nature can be expensive. The Texas study recommendations would also require substantial support in terms of time and funding and would have to compete with other priorities for these resources.

Considering the experiences of other states, the key to making inroads into the arena of occupational change would appear to be twofold. First, the approach must have specific steps clearly identified that can be initiated with current resources and programs. Second, the approach must bring together a variety of programs, agencies and organizations that have both a stake in and a responsibility for identifying and responding to occupational changes in the labor market. This includes business and labor as major partners in the effort.

The Virginia study is a good example of bringing together employers and labor market data from the Occupational Employment Statistics (OES) program to present a more complete picture of changing occupational skill requirements. The California Employment Development Department (California, 1989) has a State/Local Cooperative Labor Market Information Project that also utilizes this type of combined approach. The California project begins with occupational and industry projections then involves local employment training agencies to identify occupations for which better labor market information is needed. A survey of

employers is then conducted which includes information on skill requirements. Survey responses are then tabulated, analyzed and distributed to all potential users. The state provides the technical expertise and standardization, the local agencies (or "partners") provide the needs input and actual survey operations. A variation of this approach could serve as a useful model for Florida.

Florida currently has no active program specifically for the purpose of identifying new, emerging and changing occupations although there are many related programs in place that will be described in more detail in the next part of this paper.

In 1982, the Florida Occupational Information Coordinating Committee sponsored a study entitled Approaches to Identifying New and Emerging Occupations in Florida. This study focused on the importance of the Occupational Employment Statistics (OES) program in Florida as a key resource for identifying new and emerging occupations and offered a number of recommendations in support of strengthening the OES program. Today, most of these recommendations have been implemented and Florida has a very strong and vital OES program. This paper will look at some ways this program can now be used in the process of identifying new and emerging occupations.

E. General Issues

As the subject of new, emerging and changing occupations is studied, it is important to maintain awareness of the rapidly increasing rate at which technology is advancing, which in turn affects the rate of change in what tasks are required in the workplace, and how these tasks are performed. Approaches to identifying change must incorporate on-going processes, not periodic projects to identify new and emerging occupations. In the past, we have had longer periods of time to incorporate change; we no longer have this luxury.

Florida's economy depends on high productivity to compete effectively in today's global market place, as pointed out in "Project Cornerstone," sponsored by the Florida Chamber of Commerce. This requires incorporating the latest technology in business and industry, and on a supply of skilled workers. We must know what skills are needed and incorporate this information into our education system on a timely basis.

In addition to the issue of timeliness and rate of change, response to occupational evolution must consider the issue of quality work when determining how to respond to occupational training needs. Many rapidly growing occupations pay low wages and provide little opportunity for advancement. As occupational changes are identified, emphasis should be placed on responding to those occupations with higher wages and career ladders.

PART II. IDENTIFICATION PROCEDURES

This part deals with how to identify new, emerging and changing occupations and the skill requirements of these occupations. Two important sources of information are essential for this task: (1) data about the labor market, and (2) information from employers.

The three sections of this part discuss the states key resources for labor market information, employer information and recommendations related to the use of these resources.

In general, Florida has a rich supply of resources that can be tapped and coordinated to create a strong approach to identifying, describing and responding to occupational changes in the State's economy.

A. Labor Market Information Resources

The most comprehensive and standard resource for data about the occupations in Florida's labor market is the Occupational Employment Statistics (OES) program operated by the Bureau of Labor Market Information, Florida Department of Labor and Employment Security and delivered through the Florida Occupational Information System (FLOIS) (see Appendix A for an example).

The Florida OES program surveys employers by Standard Industrial Classification (SIC) grouping, using a standard list of occupational titles and definitions with space for employers to write in occupations that are not on the list. The results of this survey are used in two ways. First, survey results reporting current occupational employment and staffing patterns are published for significant industries in Florida. Second, industry and occupational projections are developed, providing estimates of future employment, including estimates of job openings expected to occur due to industry growth and labor force separations.

One of the features of the OES program is the occupation-industry matrix that provides information about the distribution of occupations within a particular industry (referred to as staffing patterns), and the inverse of the matrix that provides information about the percent of an occupation's total employment distributed across different industries.

The Florida OES program therefore provides important and varied information for examining occupations in high technology industries, fast-growing industries, changes in staffing patterns over time, fast-growing occupations, and examining occupational growth patterns over time.

In addition to the Occupational Employment Statistics program, the Florida Bureau of Labor Market Information has many other

useful products and resources. Two recent publications are particularly relevant to this paper. The document 90 Jobs for the 90's. A Guide to the Top 90 Job-Producing Occupations in Florida for the 1985-1995 period lists the jobs in Florida with the highest number of expected job openings based on growth and replacement factors. The industries with the highest employment for each of these occupations are also provided in the publication.

Florida Workforce 2000 is another publication from the Bureau of Labor Market Information. It examines population and labor force trends, employment by industry trends, employment by occupation trends, education and employment relationships, and education, wages and unemployment relationships. This publication presents the Florida situation for some of the same factors described in the national publication, Workforce 2000, (Johnston, 1987) produced in 1987 for the U.S. Department of Labor.

B. Industry and Labor Information Resources

The Florida OES program can provide comprehensive and reliable data on occupational employment in Florida. However, jobs that are new to the economy may be too small to be picked by the program, and jobs that are changing may be reported in a broader or more general category. Also, the OES program is not designed to identify the skills required by different occupations. It is therefore necessary to examine ways to supplement OES data in these areas. This can best be done by the organizations most closely involved with the duties and skills of various jobs; i.e., industry and labor.

There are a number of existing vocational education-related organizations, in addition to the Florida Council on Vocational Education, that have industry and labor members for the purpose of advising and assisting with vocational education linkages. These organizations exist at both the state and regional or local levels.

State-level vocational education-related organizations, in addition to the Florida Council on Vocational Education, include:

Advisory technical committees for each of the occupational program areas that provide input into the development of curriculum to assure realistic, high quality vocational instructional programs. Functions of these committees include identifying occupations in the program area and related employment opportunities, identifying occupational competencies, and providing input about current and future job opportunities.

The Economic Development Advisory Committee advises the State Board of Community Colleges in the operation of the Sunshine State Skills Program which was established to assist employers that have specific training needs for employees in new, expanding or diversifying businesses.

The Florida Education and Industry Coalition was established to enhance cooperation between education and industry in Florida. One of the stated functions of this organization is to assist in responding to advanced technological needs.

The Florida High Technology and Industry Council was established to help coordinate educational resources in the state with the needs of business and industry in the high technology arena.

The Industry Services Advisory Council has as one of its functions the coordination of interagency activities related to the identification of prospective new or expanding industries and training needed by such industries.

Regional-level vocational education-related organizations include:

Local General Advisory Committees may be established by program area, school, community or region and include at least one representative from business, industry and labor.

Craft/Occupational Committees are established for a particular program area and are comprised of persons who have a background in the occupational program area. They deal with such matters as program curriculum content and equipment needs.

There are four regional organizations related to the Florida Education and Industry Coalition. These include the East Central Florida Consortium for Higher Education and Industry, the Information Technology Education Consortium of Northeast Florida, the Southeast Florida Educational Consortium, and the Tampa Bay Consortium for Business and Higher Education.

There are 28 Regional Coordinating Councils that are involved in regional needs assessment and planning for vocational education. At least 51% of the council membership must represent business and industry.

In addition to vocational education-related organizations, there is the State Job Training Coordinating Council and the regional Private Industry Councils associated with the Job Training Partnership Act, and the State Apprenticeship Council, all of which include business, industry and labor representatives and which relate to vocational education activities in Florida. The Florida AFL-CIO is the state's association of union organizations and it

has a network of Central Labor Councils made up of local union affiliates. The Labor Market Information Coordinating Committee has representatives from all of the major state agencies in the employment-education arena, as well as private industry. The Job Service Employer Committee (JSEC) is another key group for potential involvement.

The Division of Vocational, Adult and Community Education currently has a premier program to develop Career Merit Achievement Plans (Career Maps) as a part of its Industry-Based Partnership Program. The Career Maps are used to display the student performance standards and to document the level of achievement demonstrated by the student on these standards. These standards are also incorporated into the Florida Vocational Program Guide for a particular vocational program. Both the Career Maps and Vocational Program Guides are developed with the support of a committee of industry representatives.

The Division of Vocational, Adult and Community Education also supports an interagency program entitled the Florida Education and Training Placement Information Program (FETPIP) that collects data from employers on the occupations held by former students, and on employer opinions about public vocational education and student preparation for employment. The Florida Employer Opinion Survey Project was supported by a number of related agencies and organizations in a cooperative effort.

C. Recommendations

The recommendations in this section focus on some specific activities that can be taken in Florida, using the labor market information and employer and labor resources listed above.

1. Activities on new and emerging occupations should be coordinated through the Labor Market Information Coordinating Committee (LMICC).

Although the activities recommended here, or carried out in relation to identifying and describing changing occupations in Florida should not be the sole responsibility of the LMICC, there will be considerable coordination necessary to accomplish the required tasks. The LMICC, by its purpose and membership, is the most appropriate organization for this purpose. This contention is supported by the heavy involvement of State Occupational Information Coordinating Committees (SOICCs) in other states in new and emerging occupations activities and projects.

2. The Bureau of Labor Market Information should identify significant occupations and industries in Florida related to new, emerging and changing occupations. Data collected through the

Florida Employment and Training Placement Information Program should also be utilized in this effort.

Suggested activities for the Bureau of Labor Market Information in this area include:

- a. Development of a written report on procedures (state and substate) for identifying changing occupations in Florida, including the use of FLOIS and any recommended changes in FLOIS content or delivery capabilities.
- b. Identification of (and/or procedures for identifying) occupations with significant growth rates and size.
- c. Identification of high technology and high growth industries in Florida at the most detailed level possible considering confidentiality constraints.
- d. Identification of occupational staffing patterns (state and substate where available) within significant industries.
- e. Analysis of staffing pattern changes of significant occupations and within significant industries.
- f. Examination of the occupations written in by employers on the long and short forms of the OES survey to determine the usefulness of this information for identifying new and emerging occupations.

FETPIP contacts employers to obtain job titles of former students hired by them. Employers are given two choices regarding how they respond. They can either provide the job titles resident in their own personnel systems, or they can choose an OES code/title that is most appropriate to what the student does on the job. A list of OES codes/titles specific to each type of business is provided for the employer's use if they choose the latter.

FETPIP contacted more than 22,000 employers in 1989. Of the approximately 18,500 who responded, about 40% provided employer-generated titles. Most of the businesses who provided their own titles were larger firms. The FETPIP process includes an automated coding system that captures the employer-generated title and assigns it an appropriate OES code/title. Each OES code/title in the system, therefore, is associated with multiple titles actually used by employers. For example, the OES title "Medicine and Health Services Managers" in the Health Services Industry has 28 unique employer-generated titles associated through responses to FETPIP contacts. The system also records the frequency of title usage by employers. These data might be used to make OES titles more consistent with what employers actually use, they might also be used to identify new and emerging occupations.

3. The Bureau of Labor Market Information should work with the Division of Vocational, Adult and Community Education, in cooperation with the Division of Community Colleges, to develop survey procedures for identifying additional new, emerging or changing occupations and their skill requirements.

It is recognized that the OES program cannot identify all new, emerging or changing occupations, or the skills required by these occupations. It is therefore necessary to design ways to obtain additional information from employers. Both statewide and regional information collection procedures probably need to be designed.

At the state level, the Florida Employer Opinion Survey Project, operated through the Florida Employment and Training Placement Information Program, should be examined to determine the possibility of adding question items for the identification of new, emerging, and changing occupations and their skill requirements.

At the regional level, the approach used by the California Employment Department (see Appendix B) should be investigated. Using this approach, the Bureau of Labor Market Information would provide targeted occupational and industry information from recommendation 2, and assist in the technical aspects of the survey approach, including design of a standard questionnaire, sample selection, and data tabulation. Actual survey operations would be carried out by a "local partner," in this case probably the Regional Coordinating Councils.

The Bureau of Labor Market Information would coordinate their work through the Division of Vocational, Adult and Community Education (DVACE), in cooperation with the Division of Community Colleges, who would in turn work with the Regional Coordinating Councils. Coordination of local efforts with the local Economic Development Commission and Private Industry Councils should be encouraged and data should be available to all interested users to maximize the use of funds and minimize data collection requests to employers.

Regional survey results should be returned to DVACE. DVACE should work with the Bureau of Labor Market Information to develop statewide information from the regional surveys where possible, and with the state-level program area technical committees to review the survey results, along with committee input, and include findings in appropriate Vocational Program Guides and Career Merit Achievement Plans.

4. The Division of Vocational, Adult and Community Education should utilize the information on changing occupations to help set priorities for Career Merit Achievement Plan development.

The goal is to have all Vocational Program Guides and Career Maps reflect current skill requirements for occupations trained for through vocational education programs.

At the present time, funding limitations constrain the number of occupations and vocational programs that have Career Maps. The results of the information products in recommendation 2, and information obtained from the activities in recommendation 3, should be used to determine priorities for Career Map development and to update Vocational Program Guides as needed. The performance standards developed for these occupations, using industry technical committees, would serve as input for describing the skill requirements for identified changing occupations.

Input on the skills required for targeted changing occupations should also be requested by DVACE, in cooperation with the Division of Community Colleges, as appropriate, using a standard procedure, from the other state-level vocational education-related committees listed in section A of this part.

5. The Division of Vocational, Adult and Community Education, in cooperation with the Division of Community Colleges, should identify and provide funding to support the recommended activities for the Bureau of Labor Market Information and for the continuation and expansion of the development of Career Maps for targeted occupations.

Existing sources of support should be investigated first, including federal vocational funds, JTPA education coordination ("8%") funds, state JTPA funds for a joint effort, and state Wagner-Peyser ("10%") funds. Although some of the activities recommended in this paper fall within the current responsibilities of the organizations involved, it is recognized that some of the activities necessary to identify and describe changing occupations will require additional resources.

6. The Labor Market Information Coordinating Committee should recommend how to effect a statewide impact on responding to identified changes in occupations and related skill requirements.

It will be important for all appropriate organizations to be aware of the information and resources available to address the subject of changing occupations, and of coordinated approaches being taken. One contribution to this goal would be a statewide

conference on the findings and procedures for identifying and describing changing occupations in Florida. The conference should include all relevant state-level and regional-level organizations including the LMICC member agencies, the organizations listed in sections A and B of this part, and other interested parties. The conference should last at least two days. The first day should present findings and could include speakers from Texas, Virginia and California on their activities in this area. The second day should consist of workshops where Bureau of Labor Market Information Economists work with the Regional Coordinating Councils and Private Industry Councils in their geographic areas to identify local survey interest and procedures while the LMICC meets with other pertinent state-level organizations.

PART III. RESPONSE

The identification and description of changing occupations is only a first step; what to do with this information is the reason for the identification. This part of the paper consists of three sections dealing with Florida's emerging labor force, the state's approach to preparing this labor force for employment in the jobs of tomorrow, and recommendations for responding to identified needs of both the changes in the labor force and the changes in occupations and their skill requirements.

A. Labor Force Needs

This paper will not attempt to provide a thorough analysis of Florida's future labor force; indeed, such information is not readily available. It will rather highlight some of the expected labor force trends as they appear to apply to Florida.

The Florida Blueprint for Career Preparation states that "eighty percent of new workers at the turn of the century in Florida will be minorities or women." The U.S. Bureau of Labor Statistics indicates that 58% of the labor force growth between 1986 and 2000 will be accounted for by Blacks, Hispanics, Asians and other minority groups.

According to the Florida Department of Labor and Employment Security publication, Florida Workforce 2000, Florida's population is projected to increase at a rate of 33% between 1986 and 2000, reaching a level of 15.4 million. All of this population growth will be due to in-migration as deaths will exceed births.

During the fourteen-year period between 1986 and 2000, Florida's employment is expected to increase by 2,774,052 (53.01%) to a total of 8,007,378. On the average, there are estimated to be 457,777 job openings annually during this period, based on industry growth and separations from the labor market. Separations alone are projected to account for an average of 259,601 openings each year. Over the period from 1986 to 2000, this means there could be as many as 6.4 million new entrants to Florida's labor market.

If we look at growth alone, not considering separations, 2.7 million new jobs are anticipated in Florida by 2000. In other words, if everyone now working continued to work in 2000, there would still be 2.7 million entrants needed in Florida. Although many of these jobs will be filled by experienced workers moving to Florida from other states, not all of the new jobs will be entry level positions, and not all new jobs will require specialized education and training, there is still a tremendous need for new workers facing Florida.

According to the U.S. Bureau of Labor Statistics, in the 1988-89 Occupational Outlook Handbook, the labor force share held by minority group members will increase from 1986 to 2000 as follows: Blacks from 11 to 12 percent, Hispanics from 7 to 10 percent, and Asians and other from 3 to 4 percent.

Although Florida probably exceeds the national percentages in these same categories, comparable data are not readily available for the state. If national statistics from the U.S. Bureau of Labor Statistics are applied to Florida, and employment data are used to approximate labor force figures and trends, a conservative estimate of the demographic composition of Florida's workforce is as follows:

	1986		2000		Change	
	%	Number	%	Number	%	Number
Total Employment	100	5,233,326	100	8,007,378	53	2,774,052
White	79	4,134,328	74	5,925,460	34	1,791,132
Black	11	575,666	12	960,885	67	385,219
Hispanic	7	366,333	10	800,738	119	434,405
Asian & other	3	157,000	4	320,295	104	163,295

In addition to the rapid increase of minority groups, changes are also expected in the proportion of women joining the labor force. The U.S. Bureau of Labor Statistics projects that women will account for nearly 2 out of every 3 entrants and by 2000, will account for 47% of the labor force, compared to 44% in 1986. Again, if national statistics are applied to Florida, against employment projections, the number of women in Florida's labor force in 2000 will be 1,460,805 more than in 1986, for a total of 3,763,467, increasing at a 63% rate.

Even if we do not have all of the data we need to quantify Florida's future labor force in terms of size and characteristics, is it clear that the state must educate large numbers of workers during the next ten years, and that a significant proportion of these workers will not have the skills needed to fill Florida jobs unless significant intervention takes place.

B. Organizational Services

The Blueprint for Career Preparation sets up a framework for a comprehensive vocational education program that will prepare workers to successfully enter and remain in the labor market. A career development process, from kindergarten through high school graduation, is outlined in the Blueprint, and includes responsiveness to both changes in occupations and changes in the labor force. For example, in the self- and career-awareness phase, grades K-5, student competencies include becoming aware of changing occupational roles for males and females. In the 6th grade, one of the student competencies is identifying career opportunities in the field of technology. In the 7th and 8th grades, students start to formulate career goals and explore career and educational options.

By high school, students are implementing their career preparation plans. One of the curriculum and instructional strategies for this phase is revising vocational curriculum and instruction to place greater emphasis on the technical concepts and skills that underlie the competencies of an occupational area. In each of the phases of the Blueprint, it is clear that current information about the occupations in the labor market, and their skill requirements, are absolutely essential components for the successful implementation of the Blueprint.

Two key resources available to assist in linking students in career preparation programs to employment are the Florida Career Information Delivery System and the Schools Program of the Job Service of Florida.

The Bureau of Career Development in the Florida Department of Education has an excellent career information delivery system with a computer assisted component called CHOICES. There are versions of CHOICES available for junior high, high school and postsecondary

school, and for adults. The program is currently operating in almost all of the public postsecondary schools in Florida, as well as many middle schools, high schools and colleges. The information delivered through CHOICES includes a category for new and emerging occupations and the system has the capacity for being tailored to meet Florida's specific career information needs, including expansion to incorporate skill and preparation requirements.

The Florida Department of Labor and Employment Security, Division of Labor, Employment and Training, through the Job Service of Florida in cooperation with the Florida Division of Vocational, Adult and Community Education, began a joint effort in 1981 to improve placement services for students of vocational technical schools. In 1988, 33 vocational-technical schools and 32 Job Service staff were involved in this program, as well as eight community colleges. There is also a Cooperative High School Program component, where the Job Service offers counseling, aptitude testing, and job placement services to students during their senior year and after graduation.

During the 1988-89 fiscal year, the Job Service Schools Program registered 12,347 vocational training completers and placed 37% of them; 64% of these were training-related placements. Overall, the program reached beyond the vocational-training completers and placed a total of 8,052 applicants into jobs, including other students and members of the community.

C. Recommendations

1. The Florida Department of Education, in cooperation with the Florida Department of Labor and Employment Security, should develop information about the number and characteristics of expected new entrants to Florida's labor force.

The labor force projections data used by the U.S. Bureau of Labor Statistics and the Hudson Institute's publication Workforce 2000 should be examined and tailored to Florida. This information should be readily available from both Departments and incorporated into planning processes for vocational education needs of the future.

2. The Florida Career Information Delivery System should incorporate information about new and emerging occupations in Florida, and on skill and preparation requirements, based on data from recommendations in Part II of this paper.

Current information about the occupations in Florida's labor market must be available for students and labor force entrants of all ages, from kindergarten through adulthood. Although career information needs to be delivered to suit the needs of people in different phases of career development, it is always important that Florida's Career Information Delivery System assist in meeting the

competencies expressed in the Blueprint, and that it accurately reflect both the labor market of today and of tomorrow. As students progress in their career preparation, it is essential that Florida's Career Information Delivery System include current and accurate information about occupations and educational preparation requirements and resources.

It is also crucial that preparation and skill requirements, such as contained in the Career Maps and Vocational Program Guides, also be available to students as they develop their career plans and to adults in career transition as they make career decisions that may include the need for retraining.

The expanded use of the Florida Career Information Delivery System should be encouraged, including in the Job Service Schools Program.

3. The Schools Program of the Job Service of Florida should be encouraged at high schools, vocational technical schools and community colleges with particular emphasis on providing support to emerging segments of the labor force, specifically women and minority groups.

The Schools Program provides an excellent resource for school to work transition support. It has also proven to be a valuable resource to all types of students and members of the community and its success should be supported and encouraged.

Information obtained on new, emerging and changing occupations and skill requirements from the recommendations in Part II of this paper should be incorporated into the operation of the Schools Program to optimize the linkages it provides between workers and employers.

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Appendix A

0121 3 110 DVE 26	FLORIDA OCCUPATIONAL INFORMATION SYSTEM			
01C0115	EMPLOYMENT TRENDS/OUTLOOK		PAGE	1
	DVE REGION 26 SUPPLY	155	DEMAND	24
SET 110 COMPUTER ELECTRONICS	STATEWIDE SUPPLY	1215	DEMAND	275

RELATED OCCUPATIONS(==ALLOCATED)	DVE	EMPLOYMENT	--CHANGE--		AVG
OES CODE	OES TITLE	RCN	1971	1996 NET	% WAGES
B5705406A	DATA PROCESSING EQUIP.	26	410	516	90 23 0.64
		ALL	4391	5551	1160 26 0.26
	SET TOTALS	26	410	516	90 23
		ALL	4391	5551	1160 26

RELATED	
CIP CODE	PROGRAM TITLE
06 15040200	COMPUTER SERVICING TECHNOL
06 47010400	COMPUTER ELECTRONICS
06 47011400	MICRO COMPUTER ELECTRONICS

Appendix A continued

OISI & 110 DVE 26	FLORIDA OCCUPATIONAL INFORMATION SYSTEM						
OISO110	EMPLOYMENT AND OPENINGS					PAGE	1
	DVE REGION 26 SUPPLY	155	DEMAND	24			
SET 110 COMPUTER ELECTRONICS	STATEWIDE SUPPLY	1215	DEMAND	275			
RELATED OCCUPATIONS((* = ALLOCATED)							
OES CODE	OES TITLE	DVE RGN	1991	1996	AVR OPEN	DUE TO GROWTH	DUE TO REPLACE
05705606A	DATA PROCESSING EQUIP. REPAIR	26	410	516	24	20	4
		ALL	4391	5551	275	232	43
	SET TOTALS	26	410	516	24	20	4
		ALL	4391	5551	275	232	43
RELATED							
CIP CODE	PROGRAM TITLE						
06 15040200	COMPUTER SERVICING TECHNOL						
06 47010400	COMPUTER ELECTRONICS						
06 47011400	MICRO COMPUTER ELECTRONICS						

Appendix B

STATE LOCAL **LM I** Cooperative Program

PROCESS

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